

ELECTRICAL IMPULSE APPARATUS FOR FACIAL MASSAGE

BACKGROUND OF THE INVENTION

The present invention relates to an electrical impulse apparatus for facial massage, and more particular, to a facial toning apparatus which provides
5 electro-muscle stimulation to exercise facial muscles.

It is well known of that as a person ages the facial muscles of an individual lose tone and elasticity and tend to sag. The loss of tone and elasticity of the facial muscles creates wrinkles and jowls on a person's face. No one, especially woman, wants age lines or depressions which become more or less prominent
10 parts of his or her facial features and are generally considered undesirable in appearance. As such, many products and devices exist out in the market that claim to slow, stop or reverse the aging process of the skin. One of them is by clinic therapy, such as by face-lift or botulinus treatment. Particularly common are the topical creams for moisturizing, naturalizing and contracting face or body
15 skin. Various creams, lotions and skin conditioners are available which are purported to reduce or eliminate the negative aspects of the appearance of these age lines. However, invariably, they must to be applied continually and there is certainly no immediate effect.

BRIEF SUMMARY OF THE INVENTION

20 The present invention provides an electrical impulse apparatus for facial massage which generates impulse to the epidermis of the skin to increase the blood circulation in the surrounding area and stimulate the contraction of the muscle. Therefore, the tone and elasticity of the facial skin can be remained so as to minimize the wrinkle and sagging of facial muscles and delay the aging of
25 the skin.

Furthermore, the present invention provides an electrical impulse apparatus for facial massage which utilizes a pad attachable on face to transmit electro-muscle stimulation (EMS) without penetration treatment to human body. Therefore, there is no invasion of the tissue and more safety is obtained.

5 Still further, the present invention provides an electrical impulse apparatus for facial massage which is cost-effective by using electrical power to maintain the application. Therefore, it is affordable for user.

 The electrical impulse apparatus for facial massage provided by the present invention includes a circuit to generate pulsed signals and then the signals are
10 transmitted to two electrodes mounted on the pad by conductive lines. Therefore, when the pad is attached to the facial skin, EMS is applied to exercise facial muscles to improve muscle tone and strength and to against aging process.

 These and other objectives of the present invention will become obvious to those of ordinary skill in the art after reading the following detailed description of
15 preferred embodiments.

 It is to be understood that both the foregoing general description and the following detailed description are exemplary, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

20 These, as well as other features of the present invention, will become apparent upon reference to the drawings wherein:

 Figures 1 shows a perspective view of a first preferred embodiment provided by the present invention;

 Figure 2 shows a perspective view of a second preferred embodiment
25 provided by the present invention;

 Figure 3 shows a circuit diagram of the present invention;

 Figure 4 shows a flowchart for operating the present invention;

Figure 5 shows an operation cycle of the present invention; and
Figure 6 shows an application to attach on the face.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to the preferred embodiments of the
5 present invention, examples of which are illustrated in the accompanying drawings.
Wherever possible, the same reference numbers are used in the drawings and the
description to refer to the same or like parts.

Body exercise is triggered by nervous system. Muscles provide strength to
lead skeleton to complete. The nervous system includes central and peripheral
10 parts. The nerve fibers of the peripheral nervous system execute the response of
the central due to the stimuli. The exercise message sent by brain is an impulse
which is delivered from neurons one by one to muscle. This impulse reflects a
voltage change. That is, a voltage value of the neuron is -70mV at static, and
 $+30\text{mV}$ at dynamic state. Thus, the impulse has a waveform as a pulse.

15 One the other hand, electro-muscle stimulation (EMS) is well known in the
medical art. This technology utilized a conductive pad or electrode to externally
apply a very weak current to a muscle or group of muscles and thereby cause them
to contract. The electrode receives an electric stimulation signal from an external
voltage/current source, such as an EMS machine. The stimulation signal can be
20 adjusted in amplitude, polarity, frequency, waveform, etc. EMS is useful for the
general exercise of functional muscles to improve muscle tone and strength.

Furthermore, the facial condition represents the first impression of the age.
Dry skin, loss of firmness and elasticity, wrinkle and sagging accompany the aging
process. If these negative aspects of the appearance is improved, an anti-aging
25 effect is obtained. Therefore, this invention introduces impulses of EMS to facial
skin so as to exercise the muscles to achieve the goal.

As shown in Figure 1, the electrical impulse apparatus for facial massage provided by the present invention includes a controller 1 and a pad 2. The controller 1 includes a circuit board 14 installed inside a housing 11. At least two buttons 121, 122 are set on the surface of the housing 11. One of the buttons 121 is served to power on the apparatus when the apparatus is power-off, and in turn to increase the strength of the output impulse when the apparatus is power-on. Similarly, the other button 122 is to decrease the strength and power off the apparatus. It can utilize different kind of pushing arrangement to perform this function, such as when the apparatus is power-on, pressing the button 122 will continuously reduce the strength of the output impulse until the power is off. Moreover, a light emitting device 15 is installed on the housing 11 to indicate the power of the apparatus is turned on or off. The circuit board 14 includes two conductive lines 13 connected to two electrodes 21, respectively. The electrodes 21 are mounted on the pad 2 with a fixed arrangement. The pad 2 has one surface attachable to the facial skin. The controller 1 and the pad 2 can be separate by the connection of the conductive lines 13. As such, user can hold the controller 1 in hand to perform facial massage. However, controller 1 and the pad 1 can be combined together as shown in Figure 2. In this preferred embodiment, there is no need of the external conductive lines 13.

Figure 3 shows the circuit diagram of the electrical impulse apparatus. As shown, the circuit board 14 includes a microprocessor 141 and an impulse generator 142. The impulse generator 142 is controlled by the microprocessor 141 to generate pulsed signals. The signals may transmit to the electrodes 21 via the external conductive lines 13. The switch of buttons 12 and the light emitting device 15 are connected to the microprocessor 141. User pushes the switch 12 to operate the microprocessor 141 to output the impulse. The microprocessor 141 also controls the light emitting device 15 to indicate the on/off status of the apparatus.

The flowchart for operating the electrical impulse apparatus is illustrated in Figure 4. As shown, after the apparatus is powered on, the pulsed signals are sequentially sending from the impulse generator 142 to the electrodes 21. If the strength of the output impulse is changed by user, the impulse generator is controlled by the microprocessor 141 to adjust the amplitude of the pulse wave with respect to the change. After an operation cycle is finished, the microprocessor 141 will automatically power off the apparatus until it is activated by user again. The operation cycle is shown in Figure 5. There is a totally continuous thirty-minute cycle including ten sessions. The first session outputs the impulse with the pulse wave 100Hz in frequency and $100\mu s$ in width for continuous three minutes. The second session outputs the impulse with the pulse wave 130Hz in frequency and $80\mu s$ in width for continuous three minutes. The third session outputs the impulse with the pulse wave 100Hz in frequency and $100\mu s$ in width for continuous four minutes. The fourth session outputs the impulse with the pulse wave 8Hz in frequency and $20\mu s$ in width for continuous two minutes. The fifth session outputs the impulse with the pulse wave 100Hz in frequency and $100\mu s$ in width for continuous four minutes. The sixth session outputs the impulse with the pulse wave 5Hz in frequency and $30\mu s$ in width for continuous two minutes. The seventh session outputs the impulse with the pulse wave 130Hz in frequency and $80\mu s$ in width for continuous four minutes. The eighth session outputs the impulse with the pulse wave 8Hz in frequency and $20\mu s$ in width for continuous two minutes. The ninth session outputs the impulse with the pulse wave 130Hz in frequency and $80\mu s$ in width for continuous four minutes. The tenth session outputs the impulse with the pulse wave 5Hz in frequency and $30\mu s$ in width for continuous two minutes.

There are three preferable locations for attaching the pad. As shown in Figure 6, the first location 3 is from cheekbone to lip corner. The effect of the

stimulation is to activate and raise the cheek muscles. The second location 4 is from cheekbone to jawbone. The effect of the stimulation is to prevent from the formation of jowls and deformation of the face. The third location 5 is from temple to nostril. This place is a high sensitive area. The effect of the stimulation will obtain delighting enjoyment and exercise eyes. Moreover, same effect happens to massage these three locations, that is, increasing the blood circulation in surrounding areas so as to minimize the wrinkle and sagging of facial skin.

This disclosure provides exemplary embodiments of the present invention.

10 The scope of this disclosure is not limited by these exemplary embodiments. Numerous variations, whether explicitly provided for by the specification or implied by the specification, such as variations in shape, structure, dimension, type of material or manufacturing process may be implemented by one of skill in the art in view of this disclosure.